~~Addendum~~
General Dynamics Corporation Shipyard
Outfitting Pier 2 (Pier 2S)
97 East Howard Street
Quincy/~~Braintree~~
Norfolk County
Massachusetts

HAER No. MA-26-C

HAER
MASS
11-QUI,
10C-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION, NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

HAER
MASS
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HISTORIC AMERICAN ENGINEERING RECORD

~~Addendum to~~

GENERAL DYNAMICS CORPORATION SHIPYARD

Outfitting Pier 2 (Pier 2S)

HAER No. MA-26-C

Location: 97 East Howard Street at Fore River, Quincy/~~Braintree~~, MA. Bounded by East Howard Street (west), Quincy Avenue (south), Weymouth Fore River (east), South Street, Washington Street, and Fore River Bridge (north). Property lies in the cities of Quincy and Braintree, Norfolk County, Massachusetts.

USGS Weymouth, MA Quadrangle, Universal Transverse Mercator Coordinates:
A: 19.337180.4678310
B: 19.337470.4678330

Date of Construction: 1901; 1940/41

Present Owner: Massachusetts Water Resources Authority
Charlestown Navy Yard
100 First Avenue
Boston, Massachusetts 02129

Present Use: Vacant

Significance: Constructed in circa 1901 and substantially rebuilt in 1940/41, Pier 2 is significant as the oldest and primary outfitting pier in the Quincy-Fore River Shipyard. It has been an integral component of the shipyard facilities and the ship construction process throughout the yard's history. Fitting out is the last phase of construction prior to sea trials and completes the work begun in the basins, slips, and fabrication areas. The pier's structure, which retains original Quincy-granite sections and later steel-pile and concrete deck improvements, reflects changes in marine engineering and stands as a physical record of the development of this important shipyard.

Project Information:

This documentation was undertaken in June/July 1989 by the Massachusetts Water Resources Authority (MWRA) in accordance with a Memorandum of Agreement. Portions of the Shipyard will serve as a staging area and shipping point during construction of sewage treatment facilities on Deer Island in Boston Harbor and for other water supply and waste-treatment related activities.

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Description

Outfitting Pier 2 of the General Dynamics Corporation/Quincy-Fore Shipyard is located in the north east waterfront section of the shipyard. Its north side is watered by a wet basin artificial inlet of the Fore River and formerly by Bent's Creek. Its east end abuts Pier 3; its west end filled upland, formerly Bent Creek; and its south side filled land, formerly a wet basin area.

Pier 2 was originally constructed between 1901 and 1907 as a bulkhead and pier along the south side of Bent's Creek at its mouth. Maps indicate that the pier's initial size and shape remain essentially unchanged (Branch 1907). This early structure was constructed of timber pilings and cribbing supporting concrete foundations for gantry crane rails along its eastern 280 feet. It had a 127-foot long granite block masonry bulkhead wall approximately on a line with the northeast corner of the Machine Shop. The deck surface was wood planks, although portions may have been concrete. In 1920, the masonry bulkhead was extended 180 feet to the east. The construction of this new section consisted of a granite block outshore wall 34 feet wide at the base tapering to 8 feet wide at the top with a 6x8-foot crane rail foundation. The inshore wall was timber piles supporting an 11-foot high foundation. The area between the walls was filled with sand and gravel. The purpose of this improvement appears to have been to permit full use of the dock by the gantry crane.

The pier structure was substantially rebuilt in 1940/41 and its present structural system dates largely from that time, although the granite wall section remains. The pier is 806 feet long. The western 475-foot section is 65 feet wide and the eastern section is 90 feet wide. At the east angled end the northeast corner is laid at an acute angle of 70 degrees and the southeast corner at an obtuse angle of 115 degrees. The substructure consists of 410 steel bearing piles with a bracing structure of 53 main transverse beams, or bents, and 563 steel stringer beams. Bents are spaced in rows 16 feet apart and carry saddle beam supports for stringer beams with riveted end connections. Pile cap plates and expansion joints above the bents support the 10-inch-thick, reinforced concrete deck. Two sections of the substructure differ from this typical arrangement. These are the approximately 300-foot long 1901/07 and 1920 granite bulkhead, which now carries an upper section of concrete retaining wall from the top granite course to the deck, and the Hammerhead Crane foundation. The Hammerhead Crane reinforced concrete foundation dates from the installation of the crane in 1929. It was tied with anchor bolts to and supported the surrounding bent and stringer structure of the pier.

The 55,000 square feet of pier area decking was designed to carry loads of 500 lbs per square foot. Utilities located along the outshore (north) side of the pier's surface included 3 inch steam pipe, 2.5 inch industrial water, 4 inch metropolitan water, 3 inch air, and 440-250 V.D.C. and 180 CY.-230 V.A.C. electrical (Yard Plans 1943).

The major surface features of the pier deck are cranes, rails, and iron double bitts (bollards) of varying types. A spur of the Fore River Railroad double track runs the full length of the pier along its inshore, south side. South of the railroad track is the southern crane track for the 75-ton

Wellman-Seaver Gantry Crane of 1901. The oldest crane in the shipyard, it was installed at the time Outfitting Pier 2 was originally constructed. The crane now sits west of Pier 2. Running along the northern-central section of the Pier are crane tracks for a 1940/42 37.5-ton American Revolving Crane which sits on the Pier itself. The northern American Crane track is in fact the northern of the Wellman-Seaver's Crane tracks. These tracks terminate at the west side of the Hammerhead Crane. An additional steel plate railbed (track removed) is located along the north edge of the pier. The stationary 120-ton McMyler Hammerhead Crane (Structure 33S, see HABS No. MA-26-G) was originally built in 1916 elsewhere and installed at the eastern end of Pier 2 in 1929.

1989 Conditions

The steel piling and steel structure supporting the concrete deck of Pier 2 were repaired in 1969. In 1980, the pier bearing piles were found to be deteriorated and gantry crane movement was restricted (General Dynamics File Memo). Since that time, a portion of the deck at the east end has collapsed. The pier is in generally fair condition with certain areas in poor condition.

Historical Significance

Outfitting Pier 2 is the oldest of what came to be a total of four outfitting piers at the Quincy-Fore Shipyard. Its significance lies primarily in its role in shipbuilding as an integral component of the assembly and outfitting processes. It functioned as such under Fore River Ship and Engine Company, Bethlehem Steel Company, and General Dynamics Corporation ownership.

In the final outfitting phase of construction, the quality of previous work was checked, deck elements, deck paint, and interior mechanical elements and finishes were installed, and the main and auxiliary propulsion machinery were usually tested prior to sea trials (Arnott 1955). Throughout the shipyard's more than eighty year history from 1901 to 1984 as one of the leading private shipyards in the United States, numerous military and merchant vessels were outfitted at Pier 2. Pier 2's structural record reflects the evolvement of the Quincy-Fore Shipyard and improvements in marine engineering technology in the first half of the twentieth century.

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Location Map